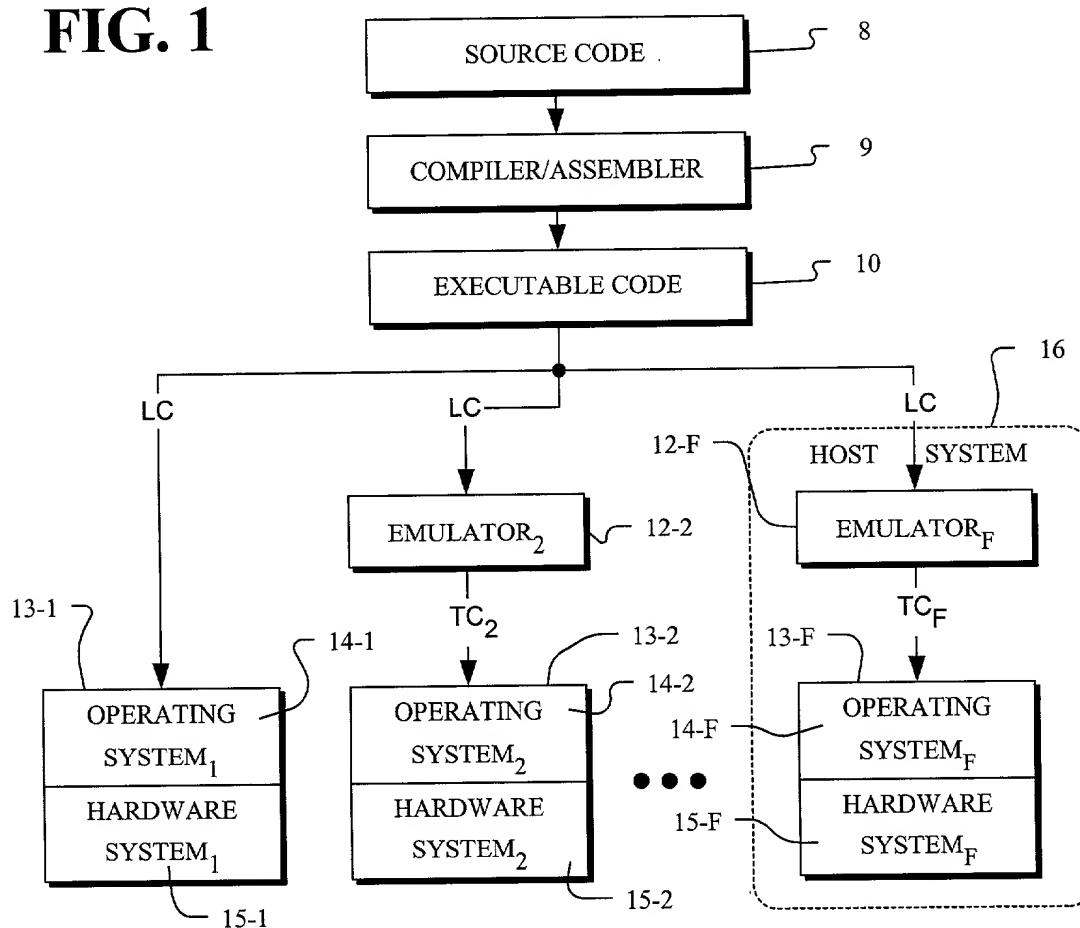
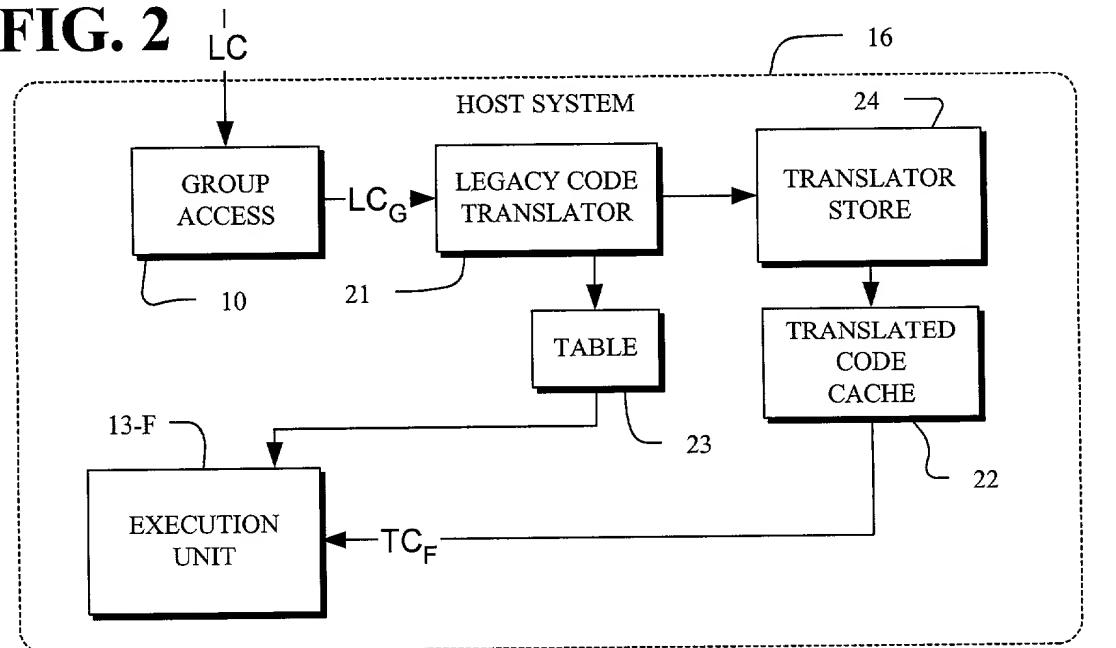


1/3

**FIG. 1**



**FIG. 2**



Title: PROCESSING OF SELF-MODIFYING CODE UNDER EMULATION

2/3

LEGACY CODE (CISC)

```
100 START BALR B1,R0
102 BASE LM R1,R2,DATA1
106 MVC DATA1,DATA3
10C AH R1,DATA2
110 SRA R1,1
114 SH R2,DATA2
118 AR R1,R2
11A BC TARGET
120 DATA1 DC X'005390BC'
120 DATA1 DC X'09C20004'
128 DATA2 DC X'0009'
12A DATA3 DC X'800039AF'
```

FIG. 3

TRANSLATED CODE (RISC)

```
100 START BALR B1, R0
102 BASE LM R1, R2,DATA1
106 MVC DATA1,DATA3
10C AH R1, DATA2
```

```
BALRMOV B1 BASE
LM ADD A1 B1,DATA1 - BASE
LD4 R1 [A1]
ADD A1 A1,4
LD4 R2 [A1]
MVC ADD A1 B1,DATA1-BASE
ADD A2 B1,DATA3-BASE
LD4 T1 [A2]
ST4 T1 [A1]
AH ADD A1 B1,DATA2 -BASE
LD2 T1 [A1]
ADD R1 R1,T1
B XFER_SEQUENTIAL
```

```
110 SRA R1,1
114 SH R2,DATA2
118 AR R1,R2
11A BC TARGET
```

```
120 DATA1 DC X'005390BC'
120 DATA1 DC X'09C20004'
128 DATA2 DC X'0009'
12A DATA3 DC X'800039AF'
```

```
SRA SHR R1 1
SH ADD A1 B1,DATA2 - BASE
LD2 T1 [A1]
SUB R2 R2,T1
AR ADD R1 R1,R2
BC ADD A1 B1,TARGET - BASE
B XFER_BRANCH
```

Title: PROCESSING OF SELF-MODIFYING CODE UNDER EMULATION

3/3

LEGACY CODE (CISC)

```

100 START BALR B1,R0
102 BASE LM R1,R2,DATA1
106 MVC OLDI, NEWI
10C AH R1,DATA2
110 SRA R1,1
114 SH R2,DATA2
118 AR R1,R2
11A BC TARGET
120 DATA1 DC X'005390BC'
120 DATA1 DC X'09C20004'
128 DATA2 DC X'0009'
12A DATA3 DC X'800039AF'

```

TC TABLE

BN STATE	
0	1
1	1
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
A	0
B	0
C	0
D	0
E	0
F	0

TRANSLATED CODE (RISC)

```

100 START BALR B1, R0
102 BASE LM R1,R2,DATA1
106 MVC OLDI, NEWI
10C AH R1, DATA2

```

```

BALR MOV B1 BASE
LM ADD A1 B1,DATA1-BASE
LD4 R1 [A1]
ADD A1 A1,4
LD4 R2 [A1]
MVC ADD A1 B1,OLDI-BASE
ADD A2 B1,NEWI-BASE
SHR A3 A1,4
AND A3 A3,0xF
ADD A3 A3,TABLE
LD4 T1 [A2]
ST4 T1 [A1]
LD1 T2 [A3]
CMP T2,0
BNE CHK_MODIFIED
AH ADD A1 B1,DATA2-BASE
LD2 T1 [A1]
ADD R1 R1,T1
B XFER_SEQUENTIAL

```

```

110 SRA R1,1
114 OLDI SH R2,DATA2
118 AR R1,R2
11A BC TARGET
120 DATA1 DC X'005390BC'
120 DATA1 DC X'09C20004'
128 DATA2 DC X'0009'
12A NEWI SLA R2,4

```

```

SRA SHR R1,1
SH ADD A1 B1,DATA2-BASE
LD2 T1 [A1]
SUB R2 R2,T1
AR ADD R1 R1,R2
BC ADD A1 B1,TARGET-BASE
B XFER_BRANCH

```

FIG. 4

